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EXAMINER

MUNOZ, GUILLERMO

ART UNIT PAPER NUMBER

2634

DATE MAILED: 02/23/2004

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/591,995

Applicant(s)

SPALINK, GERD

Examiner

Guillermo Munoz

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-4 and 7-9 is/are rejected.
7) ☒ Claim(s) 5 and 6 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Argument

Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new grounds(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. in view of Paik et al..

Liu et al. disclose all the subject matter claimed, note figure 1, except their system's Sync Extraction circuit does not provide an output signal indicating the lock-in of the receiver to one broadcast channel to switch processing stages into a different mode dependent on whether or not a lock has been achieved. However, Liu et al. disclose "optimum switching point from blind to the decision directed equalization is hard to find but in practice it is not very important" (page 678, Sec. IV)

Paik et al. teach the use of a carrier lock signal when a phase of an equalized signal reaches a threshold to switch filter coefficient processing algorithms (Col. 3, lines 34-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Liu et al.'s Sync Extraction circuit with Paik et al.'s teaching of

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producing a carrier lock signal for the purpose of switching between the two equalization algorithms, since Paik et al. suggest on column 3, lines 22-23 that the result of this would help reduce the acquisition time of the system.

Claims 2, 3, 4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. in view of Paik et al. and Lin et al.

As applied to claim 1 above, Liu et al. teach independent timing and carrier recovery loops, but suggest that a joint carrier and timing recovery system may improve performance (page 678, Sec. III).

Lin et al. teach a similar circuit using a joint timing and carrier circuit wherein:

- “Following configuration download the receiver 10 must acquire lock, i.e. synchronize its acquisition and tracking loop circuitry 30 to the frequency and phase of a remote transmitter. Receiver lock is a multi-step process which generally involves allowing the various acquisitions/tracking loops to acquire lock in a predetermined manner. For example, the AGC loops are generally allowed to acquire first, in order to ensure that the signal level at the input to the A/D converter 14 is set appropriately. AGC bandwidths are initially set wide open in order to minimize acquisition time and subsequently reduced to provide adequate tracking and minimal noise” (page 4, par. 0055).

The AGC bandwidths initially set wide open and subsequently reduced anticipate claimed clock recovery circuit switched from a robust mode used for acquisition of a broadcast channel to a locked mode in claim 2. Furthermore, the AGC bandwidths may be interpreted to anticipate claimed loop bandwidth that gets switched from a wide bandwidth mode to a narrow bandwidth mode in claim 3.

The acquisitions/tracking loops anticipate claimed adaptive equalizer that gets switched from an acquisition mode to a tracking mode in claim 4.

The receiver lock anticipates claimed lock detected output signal to other processing stages within the receiver in claim 7.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Liu et al.'s channel decoder with Lin et al.'s teaching of using a joint carrier and timing recovery system, since Liu et al. suggest on page 678, Sec. III that the result of this modification might improve performance.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. in view of Paik et al. and AAPA (Applicant Admitted Prior Art).

Regarding claim 8, as applied to claim 1 above, Liu et al. teach the channel decoder may be used in ADTV, CCDC, and DigiCipher QAM-based systems. AAPA teach a similar channel decoder, note figure 3 and page 2, lines 6-8.

Regarding claim 9, see claim 8.

Claim Objections

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (7.6)

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The following patents are cited to further show the state of the art with respect to phase detectors and phase lock signal generators:

U.S. Pat. No. 6,678,317 B1 to Murakami et al. shows alternate adaptive equalizer using phase error indicator signals as a means of switching coefficient algorithms.

U.S. Pat. No. 6,535,566 B1 to Tamamura et al. shows a phase detector having redundant Sync detectors for rapid and accurate synchronization.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Munoz whose telephone number is 703-305-4224. The examiner can normally be reached on Monday-Friday 8:30a.m-4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



GM
February 6, 2004



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